

Claims

[c1] **What is claimed:**

1. A handheld input device for controlling cursor operations on a graphic display comprising:
an outer housing having a cubic curved bottom half and a cubic curved top half;
a plurality of input buttons;
a sensing apparatus with means of recognizing pitch and roll angular displacements relative to a basis vertical axis;
an electronic input processor coupled to said sensing apparatus and said graphic display that effects pitch rotational input into vertical movement of said cursor on said graphic display and effects roll rotational input into horizontal movement of said cursor on said graphic display.

2. A handheld input device as in claim 1, wherein one of the input buttons is a navigation scroll wheel.

3. A sensing apparatus system for measuring angular displacement for a device as in claim 1, comprising:

two rotary encoders, each fixed to a spin shaft, and arranged orthogonal to each other;

where one of said rotary encoders is free to rotate about the device X axis and the second of said rotary encoders is free to rotate about the device Y axis; where said rotary encoders maintain a gravitational vector orientation through a pendulum action;

an LED and a corresponding photodetector for each of said rotary encoders units;

where said LED and said photodetector are positioned such that the rotary encoder passes through when rotated.

4. A sensing apparatus system for measuring angular displacement for device as in claim 1, comprising:
an optical position tracking sensor fixed to device housing; where said optical position tracking sensor is located on the bottom half of said device housing;
an optically reflective micro-texture surface located at a sufficient distance from said sensor such that movement of said surface will be registered by said sensor;

a spherically shaped pendulum:

where said optically reflective micro-texture surface is the outer surface of said spherically shaped pendulum;

where said spherically shaped pendulum can be a portion of or an entirety of a sphere;

a plurality of gimbals with rotational freedom in a minimum of 2 directions and coupled to said spherically shaped pendulum;

where said rotational directions are pitch and roll;

where said rotational directions are pitch, roll, and yaw.

5. An input device as in claim 1, comprising a user assigned basis vertical axis, from which angular displacement measurements are taken.

6. A signal inversion operation effectively inverting the output commands of pitch rotation for the ambidextrous version of the input device in claim 1, comprising:

a symmetry between the top half of the device housing and the bottom half; where said top half is made ergonomic to a right-handed user and said bottom half made ergonomic to a left-handed user;

a switch indicative of a change between a left handed user and a right handed user;

where said switch is an external toggle switch;

where said switch is an internal gravity dependent switch.

7. A signal inversion operation effectively inverting the output commands of pitch rotation and the navigation scroll wheel for the ambidextrous version of the input device in claim 2, comprising:

a symmetry between the top half of the device housing and the bottom half;

where said top half is made ergonomic to a right handed user and said bottom half made ergonomic to a left handed user;

a switch indicative of a change between a left handed user and a right handed user;

where said switch is an external toggle switch;

where said switch is an internal gravity dependent switch.